

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/KR2004/002625

**A. CLASSIFICATION OF SUBJECT MATTER****IPC7 C12N 15/70**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC7 C12N 15/70, C07K 16/00, C12N 1/21, C12N 15/28

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
NCBI PubMed, Esp@cenet, CA "expression vector, antibody fragment, enterotoxin signal sequence, ompA signal sequence, secretion, anti-tumor necrosis factor-alpha"

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X Y	US 5,648,237 A (GENENTECH, INC.) 15 JULY 1997 (15.07.1997) See the whole document	1-4, 16-19 5-15, 20-43
Y	HUMPHREYS D.P. et al., 'A plasmid system for optimization of Fab' production in Escherichia coli: importance of balance of heavy chain and light chain synthesis' In: Protein Expr. Purif., November 2002, Vol. 26(2), pp. 309-320 See the whole document	1-43
Y	WO 2000/015661 A1 (HANMI PHARM. CO., LTD.) 23 MARCH 2000 (23.03.2000) See the whole document	1-43
Y	RIPPMANN J.F. et al., 'Procarvotic expression of single-chain variable-fragment (scFv) antibodies: Secretion in L-form cells of Proteus mirabilis leads to active product and overcomes the limitations of periplasmic expression in Escherichia coli' In: Appl. Environ. Microbiol., December 1998, Vol. 64(12), pp. 4862-4869. See the whole document	1-43

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&amp;" document member of the same patent family

Date of the actual completion of the international search

27 JANUARY 2005 (27.01.2005)

Date of mailing of the international search report

27 JANUARY 2005 (27.01.2005)

Name and mailing address of the ISA/KR



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## Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of :

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☒

filed together with the international application in computer readable form

☐

furnished subsequently to this Authority for the purposes of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5648237 A	15.07.1997	WO 1993/006217 A1 EP 0604580 A1 JP 6510904 T	01.04.1993 06.07.1994 08.12.1994
WO 2000/015661 A1	23.02.2000	EP 1114062 A1 US 6605697 B1 JP 2002/538765 T KR 2000/019788 A	11.07.2001 12.08.2003 19.11.2002 15.04.2000